

9/1963
PARTS CATALOGUE

**Instructions for Installation
Function and Care
of**

D U E X

Automatic
SPACEBAND CLEANER

On all Intertype Machines
Except Models
F4, F4-4SM, G4, G4-4SM, H



Duex Engineering Products

15-PARK ROW — NEW YORK 7, N. Y.
12-9TH ST. GARLE PLAGE, N. Y.

DUEX ENGINEERING PRODUCTS

12 NINTH STREET

CARLE PLACE, N. Y.

Date October 9, 1962
Received from Duex Engineering Products 1 model
"L," ~~model "A"~~ Duex Automatic Spaceband Lubrica-
tor(s) on 10 days' trial on the condition that:

If we (I) mail the Duex Lubricator direct to the Duex
Engineering Products at the above address, within 10 days
from date, there will be no charge or obligation of any kind
against us (me) whatever. Otherwise, we (I) promise to pay
to the Duex Engineering Products the regular market value of
\$56.00 per each Duex received.

It is also understood that this agreement cannot be changed
orally.

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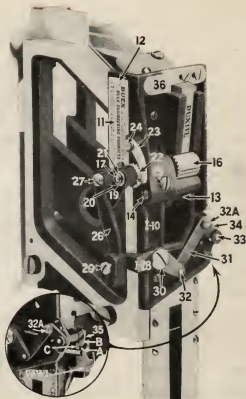
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PARTS CATALOGUE

In ordering parts please give name and number of part.

No. Name of Part

- 1-10 Frame
- 11 Name Plate
- 12 Name Plate Rivet
- 13 Wiper
- 14 Wiper Shaft
- 15 Wiper Shaft Adjusting Screw
- 16 Cutter
- 17 Cutter Shaft
- 18 Cutter Shaft Busbing
- 19 Rocker
- 20 Washer
- 21 Snap Ring
- 22 Ratchet
- 23 Pawl
- 24 Pawl Stud
- 25 Pawl Stud Pin
- 26 Link Arm
- 27 Link Arm Stud
- 1-28 Bell Crank Lever
- 29 Bell Crank Lever Stud
- 30 Bell Crank Lever Screw
- 31 Connecting Link
- 32 Connecting Link Stud
- 32A Connecting Link Stud
- 33 Actuating Lever Shaft
- 34 Actuating Lever Shaft Arm
- 35 Actuating Lever (See Insert)
- 36 Assembler Entrance Cover Locking Spring
DUXITE



Dux Illustrated With Numbered Parts

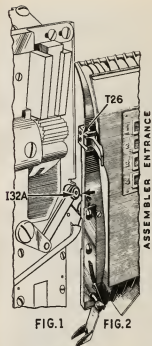


FIG. 1

FIG. 2



FIG. 4



FIG. 3

PAWL

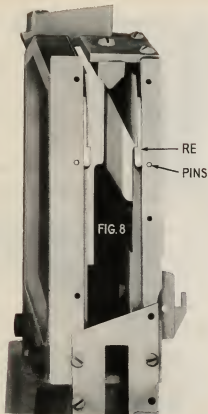


FIG. 8

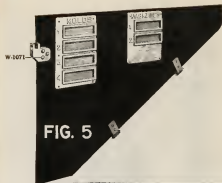


FIG. 5



Introduction

This booklet has been prepared for the convenience and benefit of those desiring authentic information on the installation, function and care of the DUEX Automatic Spaceband Cleaner.

A careful reading of the following explanations and instructions will assure successful installation and satisfactory performance of DUEX.

What Dux is and Does

DUEX is a device easily attached to the spaceband box of Linotype and Intertype typesetting machines.

(a) Cleans and lubricates spacebands on the spaceband box, automatically and unfailingly each time a spaceband is released, while the machine is producing. Thus DUEX:

(b) Maintains an even degree of spaceband lubrication at *all times*, thereby reducing machine interruptions caused by the twisting, bending and breaking of spacebands, often due to the application of too much, too little, or no graphite at all.

(c) Accurately controls the speed of the spacebands, thereby eliminating a large number of spaceband transpositions on the proofs caused by "fast bands" thus saving the valuable time wasted for their correction.

(d) Reduces matrix and magazine-cleaning time by about 85% of what it is ordinarily, under the hand-

cleaning method, because, unlike the hand-cleaning method, DUEX causes none of the familiar black, sticky graphite accumulations on matrices, magazines, escapements etc. which make their frequent cleaning necessary.

For the above important reasons, and others, DUEX is a welcome improvement to the typesetting machine.

How the Intertype Duex Works

When Duex is attached to the spaceband box, the Actuating Lever 35 lies in back of the highest point of the Spaceband Releasing Pawl (Intertype part D-2094), which actuates Duex (see A, B, C, Inset). Whenever the Spaceband Releasing Pawl is actuated and moves back, it pushes the Actuating Lever 35 back, along with it, thus setting in motion the Connecting Link 31, and the Bell Crank Lever 28. This causes the Link Arm 26 to rise and push the Rocker 19 up and, when the Spaceband Releasing Pawl returns forward to release the spaceband, the Actuating Lever follows it to position, thus causing the Pawl attached to the Rocker 19 to turn the Ratchet 22, and the Cutter 16 counter-clockwise.

Each time the Cutter 16 is thus turning, it scrapes a few particles off the Duxite Bar, located over the Cutter, and deposits these particles on the Wiper 13 which contacts, cleans and lubricates the spacebands as they drop past it on their way to the assembler.

How to Attach Duex to the Spaceband Box

Duex is correctly attached to the spaceband box when point B of the Actuating Lever 35 is lower than the highest point C of the Spaceband Releasing Pawl, and just high enough to clear the Spaceband Releasing Plunger A. (See A, B, C, inset, page 4.)

1. Detach Spaceband Box from machine.
2. Remove Spaceband Chute Plate, Upper, T-1245 from Box.
3. Insert the two Spaceband Plate Rail Extensions ($\frac{1}{16}$ " x $\frac{1}{2}$ " x $1\frac{1}{16}$ " supplied with each Duex) into the slot between the lower end of each Rail and the Box (see RE, Fig. 8). These Rail Extensions must fit tightly enough to stay in place. If they are loose, bend them a little until they fit tightly. If bent too much, however, they may force the Rails out enough to interfere with the free down-sliding of the spacebands. Therefore, after inserting the Rail Extensions, put a spaceband in the Box and slide it down on the Rails by hand to make sure it clears them. These two small Rail Extensions must never be higher than the Rails of the Box. If they are, file them until they are even with or lower than the Rails.
4. Transfer Chute Plate Block (see T-790, Fig. 4) to the corresponding place on Duex, using the same screw to fasten it.

5. Place Actuating Lever 35 into the slot occupied by the Spaceband Releasing Pawl and drop Dnex on the Box (see Inset and note points A, B, C); move Dnex up and down until the two Spaceband Chute Dowels (see PINS, Fig. 8) fit into the 2 holes provided for the purpose in back of Dnex; use two of the screws to attach Dnex to the Box tight enough to hold the device in place.

6. Hold Spaceband Box straight, in vertical position, and actuate the Spaceband Releasing Pawl slowly by hand several times. If there is no friction, and the Pawl works freely, actuate it a few more times in faster motion and, if it does not jam, and there is no friction, use the rest of the screws to fasten Dnex to the Box permanently and return Box to the machine according to instructions in paragraphs 10 to 15 inclusive. But,

7. If there happens to be even the slightest friction, hold Spaceband Box vertically straight and look into the slot as you actuate the Spaceband Releasing Pawl by hand to determine the cause. It may be one of the following:

8. (a) The Actuating Lever may be rubbing against the side-walls of the slot. If so, clean the side-edges of the Actuating Lever with a file.

(b) The point of the Actuating Lever may be rubbing against the Spaceband Releasing Plunger T-602 (see A, B, C, Inset) as it moves back and forth. If so, grind the Plunger enough to clear, or file point of Actuating Lever just enough to clear Plunger.

(c) The Spaceband Releasing Pawl Pin W-354 may be under-sized or grooved under the Pawl. If so, the Pawl may have dropped and, on its back-stroke, the highest point of the Pawl is not high enough to strike the Actuating Lever and push it along to actuate Dnex. Instead, the point of the Pawl is under the Actuating Lever, rubbing or jamming against it. Or, the Pawl may not touch the Lever at all to actuate Dnex. Exactly the same thing will happen if the 2 Spaceband Chute Dowel Pins W-335, which hold Dnex in place, (see PINS, Fig. 8) are positioned so that Dnex is being held up too high. Therefore, inspect Spaceband Releasing Pawl Pin. If undersized, replace it with a new one. If grooved, reverse it or replace with a new one. If friction persists, loosen the screws that hold Dnex to Box, just a bit, and hold Dnex vertically straight. Then hammer Dnex lightly from the top edge to cause the 2 Dowel Pins to bend down and allow the Actuating Lever to drop until it is lower than the highest point of the Pawl.

9. Put some graphite into the slot of the Spaceband Releasing Pawl and actuate it several times.

10. Make sure there is enough spring tension on the Pawl Spring.

11. When certain that both Spaceband Releasing Pawl and Dnex work freely, return Box to machine as follows:

12. If the Assembler Entrance Cover Latch and Latch Bracket are of the T-26 type (see T-26, Fig. 2),

detach Latch Bracket. It is to be replaced by the Assembler Entrance Cover Locking Spring, Duex part 36.

13. If there is difficulty in attaching box to machine, the probable cause may be that the Connecting Link Arm 32A is striking against the Assembler Entrance Front Plate (see 32A, Fig. 1). To verify it, move Bell Crank Lever Stud 29, up and down, by hand; if it jams, file the edge of the Front Plate, where the stud jams, until it clears; screw Box to machine and move Bell Crank Stud up and down again to make sure the Connecting Link Stud is not rubbing against the Front Plate.

14. If the Assembler Entrance Cover Latch Bracket is attached to the Assembler Entrance Cover, remove Latch Bracket by knocking the 3 rivets out from inside of Cover that hold the Bracket to the Cover, then cut Cover with hacksaw to the left of the 3 rivet holes just enough to clear Duex, as indicated by dotted line in Fig. 7.

15. If the Assembler Entrance Cover is either too tight or too loose in the Duex Assembler Entrance Cover Lock Spring 36, loosen the 2 screws holding the Lock Spring to Duex Frame and adjust Spring to have only a little play between Spring and Cover.

How to Adjust the Wiper 13

1. Duex has one, convenient and positive adjustment — the Wiper 13 adjustment.

2. When the Wiper Shaft Adjusting Screw 15 is turned to right (clockwise), the Wiper 13 moves forward, toward the spacebands. Obviously, when turned to left, the Wiper moves back, away from the spacebands.

3. The closer the Wiper is set toward the spacebands, the harder it wipes them. If it is set too far toward the spacebands, it may wipe them hard enough to retard their speed materially or may even jam them in the Chute.

4. The farther the Wiper is set, away from the spacebands, the lighter it wipes them. If set too far back, away from the spacebands, it may wipe them too lightly to be effective or it may not touch them at all, in which case the service Duex can render is eliminated.

5. The Wiper is correctly adjusted when set to wipe the spacebands hard enough to retard speed just a little. When so adjusted, it will not only be more effective but will eliminate a large number of spaceband transpositions on proofs caused by "fast bands".

6. Turn Wiper Shaft Adjusting Screw 15 to right (clockwise) to cause Wiper 13 to move in, toward the spacebands far enough so that when a spaceband is released in the usual way, the Wiper will stop it and hold it in the Chute. The Adjusting Screw should then be turned to left, slowly until the spaceband drops.

7. Look at end of Wiper as more spacebands are released and observe the speed with which they drop as they pass the Wiper. Adjust Wiper, accordingly, to wipe the spacebands hard enough to cause them to drop a little slower than they dropped before attaching Duex to the Box.

8. If some spacebands drop slower than others, it would indicate that the slow-dropping ones are crooked, bent or damaged. They should be straightened out, including the lugs, and tried out again to make sure they drop with about the same speed as the rest. If, at any time, however, it is noticed that a spaceband is dropping too slowly, do not reach the hasty conclusion that the Wiper is set too far in, toward the spacebands and is wiping them too hard. Merely release several more spacebands and observe the speed with which they drop as they pass the Wiper. If the Wiper is set in too far and wipes the spacebands too hard, *all* spacebands will drop slowly.

How to Test the Wiper Adjustment

1. Continue to release a lower case "e" and a spaceband in quick succession (without posing), faster than under normal operation, and note the results in the assembler line. If matrices and spacebands are in the order they were released, and the Wiper wipes the spacebands vigorously, it would indicate that the Wiper is correctly adjusted. But if there are two unseparated matrices followed by a spaceband which

is not bent or damaged, repeat the experiment. If same thing happens, it would indicate that the Wiper is set in too far, toward the spacebands and it should be moved back a little. Repeat experiment until matrices and spacebands are in the order they were released in the line.

2. *Never change the position of the Wiper and leave the machine without making sure it is wiping the spacebands vigorously from its new position.* This can be determined by releasing spacebands and observing how far back the end of the Wiper bends as each spaceband drops past it.

3. Machine vibration, handling etc. is not likely to cause the Wiper to get out of adjustment. However, because it is possible that someone may change the adjustment and neglects to set it back, it is recommended that a few spacebands of each machine be inspected once daily for metal accumulations, and a few spacebands be released and the action of the Wiper be observed, to make sure it is continuing to wipe the spacebands vigorously.

Metal Accumulations on Spacebands

1. If metal accumulates at the "casting point" of sleeves of some spacebands only, and it is not the result of continuous recasting, it may be that the sleeves are damaged and should be replaced by new ones. But if metal accumulates on *all* spacebands, the probable cause may be:

(a) The Wiper may not be wiping the spacebands vigorously enough, or may not be wiping them at all.

(b) The Wiper may be worn at the lower right-end which wipes the spacebands at the easting side.

(c) The Duxite Lubricating Bar may be too hard, or it may be jammed. Jiggle it to make sure it is free in its holder and rests on the Cutter.

(d) The Cutter may not be turning enough. To determine it: note the position of the slot at the end of the Cutter Shaft 17 and observe it turning as you continue the release of spacebands until it makes a revolution. If more than 12 spacebands must be released before the Cutter Shaft makes a revolution, it indicates that the Cutter is not turning enough each time a spaceband is released to cut the necessary quantity of Duxite to lubricate the spacebands properly. In such case, the cause may be one of the following:

(e) The Pawl attached to Rocker 19 may be stuck and does not engage the Ratchet 22 to turn it counter-clockwise.

(f) The same Pawl or the teeth of the Ratchet, or both, may be worn and the Pawl is slipping.

(g) The Pawl 23 attached to the Duex Frame, for the same reason, may not be engaging the Ratchet to prevent it from turning clockwise when the Rocker 19 rises to upper position.

(h) The bearing of Wiper Shaft 17 may be gummy and the Shaft is not turning freely;

(i) The teeth of the Cutter may be dull; if so, use a three-corner file to sharpen the under-side. (See "Cutter").

(j) The Spaceband Key Lever may be standing too high above the Spaceband Releasing Pawl causing loss of motion. If so, the Lever should be bent down so that points A and B in Fig. 3, page 6, just about touch each other.

(k) The Actuating Lever 35 may be standing too far back from the Pawl resulting in lost motion. Determine and correct the cause.

Spaceband Lubrication

1. Excess graphite on spacebands causes undesirable, black, sticky, graphite accumulations on matrices, magazines, escapements etc. which makes their frequent cleaning necessary.

2. In order to avoid this serious problem, Duex is designed to lubricate spacebands sparingly but well enough for satisfactory spaceband performance.

3. Therefore, if spacebands under Duex do not feel as "slippery" between fingers as they may do right after hand-rubbing them in loose graphite, it should not be assumed that the spacebands are insufficiently lubricated.

4. Under Duex it is unnecessary to load the spacebands with excess graphite to keep them lubricated for a few hours longer, as it is the case under the hand-cleaning method, because Duex cleans them not

"Twice Daily" but each time they are used, thus maintaining a satisfactory, even spaceband lubrication at all times.

5. The best judge of whether the spacebands are sufficiently lubricated is not how they feel between the fingers but the "justification". If they justify freely, it would indicate that the spacebands are sufficiently lubricated. If, at any time, they fail to justify freely, proceed according to instructions under "IF METAL ACCUMULATES ON SPACEBANDS" to determine and correct the cause.

The Cutter

If and when the sharp edge of the Cutter 16 becomes dull, the supply of Duxite to spacebands may be lessened. Therefore, it is important that the sharp edge of the teeth of the Cutter must be maintained.

To detach Cutter, unscrew Link Arm Stud 27; hold Ratchet 22 with left hand and turn Cutter to right (clockwise). Or, hold Cutter and use a screwdriver to turn Cutter Shaft 17 to right, clockwise.

The Wiper 13

When the felt of the Wiper wears out, especially at the lower right-end which wipes the spacebands at the casting side, or when the rubber loses its springy action, it should be replaced with a new one. Slit the rubber Wiper along the Wiper Shaft; apply rubber cement around the Wiper Shaft and into the hole of

the new rubber Wiper, allow a minute or so for the cement to dry a little; fit the new Wiper on the Wiper Shaft and Adjust Wiper to proper wiping position.

Dux Care

Other than replacing the Wiper 13 once every few years, which requires only a few minutes, and inserting a new Duxite Bar into the Holder, periodically, requiring only a few seconds, Dux practically needs no care — not even oiling.

Duxite

1. After a few hours of operation, the Cutter 16 will cause an arc under the Duxite Bar (see Duxite) on page 6. When this happens, the back lower-end of the Duxite becomes longer than the front lower-end. If the Duxite is reversed and the long back lower-end of the arc comes in front, it will get in between the teeth of the Cutter and prevent the Cutter from turning. In this case the supply of Duxite to the spacebands will cease. To prevent this from happening, scratch a vertical groove from top to bottom on the front side of the Duxite Bar so that you may know how to put it in correctly if and when, for some reason, you have to take it out of the Holder.

2. When the Duxite Bar wears down to about one-half of its length, put another Duxite Bar over it.

Repairs

We shall gladly repair without charge any Duex unit that may be sent to us within one year from the date of purchase. Beyond this limit a reasonable charge plus cost of parts, if necessary, will be made.

Patents

Duex is protected by two United States patents on the method and apparatus. Other U. S. and foreign patents pending and applied for.

